

WHAT IS CLAIMED IS:

1. A hydroconversion catalyst for hydrosulfurizing feedstock while preserving octane number of said feedstock, comprising:

a support comprising a mixture of zeolite and alumina, said zeolite having an Si/Al ratio of between about 1 and about 20;

a metal active phase on said support and comprising a first metal selected from group 6 of the periodic table of elements, a second metal selected from the group consisting of group 8, group 9 and group 10 of the period table of elements, and a third element selected from group 15 of the periodic table of elements.

2. The catalyst of claim 1, wherein said first metal is molybdenum.

3. The catalyst of claim 1, wherein said second metal is selected from the group consisting of nickel, cobalt and mixtures thereof.

4. The catalyst of claim 1, wherein said third element is phosphorus.

5. The catalyst of claim 1, wherein said zeolite is MFI zeolite.

6. The catalyst of claim 5, wherein said MFI zeolite is ST-5 zeolite.

7. The catalyst of claim 1, wherein said support comprises between about 10 and about 90% wt of said zeolite and between about 90 and about 10% wt of said alumina.

8. The catalyst of claim 1, wherein said metal active phase contains at least about 1% (wt) of said first metal, at least about 0.5% (wt) of said second metal, and at least about 0.2 % (wt) of said third element.

9. The catalyst of claim 1, wherein said Si/Al ratio is less than about 15.

10. The catalyst of claim 1, wherein said Si/Al ratio is less than about 12.

11. A process for hydroconversion of hydrocarbon feed, comprising the steps of:

providing a hydrocarbon feed having an initial sulfur content;

providing a hydroconversion catalyst comprising a support comprising a mixture of zeolite and alumina, said zeolite having an Si/Al ratio of between about 1 and about 20, and a metal active phase on said support and comprising a first metal selected from group 6 of the periodic table of elements, a second metal selected from the group consisting of group 8, group 9 and group 10 of the periodic table of elements, and a third element selected from the group 15 of the periodic table of elements; and

exposing said feed to said catalyst under hydroconversion conditions so as to provide a product having a final sulfur content less than said initial sulfur content.

12. The process according to claim 11, wherein said hydrocarbon feed has an initial molar ratio of iso-paraffins to n-paraffins, and said product has a final molar ratio of iso-paraffins to n-paraffins which is greater than said initial molar ratio.

13. The process according to claim 11, wherein said hydrocarbon feed has an initial molecular weight of n-paraffins, and said product has a final molecular weight of said n-paraffins which is less than said initial molecular weight.

14. The process according to claim 11, wherein said first metal is molybdenum.

15. The process according to claim 11, wherein said second metal is selected from the group consisting of nickel, cobalt and mixtures thereof.

16. The process according to claim 11, wherein said third element is phosphorus.

17. The process according to claim 11, wherein said hydroconversion conditions include a temperature of between about 230 and about 450°C.

18. The process according to claim 11, wherein said zeolite is MFI zeolite.

19. The process according to claim 18, wherein said MFI zeolite is ST-5 zeolite.

20. The process according to claim 11, wherein said feed contains nitrogen in an amount of at least about 1 ppm.

21. The process according to claim 11, wherein said exposing step is carried out in a single reactor.

22. The process according to claim 11, wherein said exposing step is carried out in at least two reactors using different configurations.

23. The process according to claim 11, wherein said feed is a naphtha feedstock.

24. The process according to claim 11, wherein said Si/Al ratio is less than about 15.

25. The process according to claim 11, wherein said Si/Al ratio is less than about 12.